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constituted as important a part in the accomplishment of enterprises as the actual practice itself. In making a new thing such as a coffin, a canoe, or a house, a most important stage consisted in the consecration of the new thing after its completion by the recitation of the creation or generation chant, which linked the new product of man's handicraft with the beginnings and successive stages of creation, uniting the new thing made with all that had gone before, from the beginning of the world. In the work of food collecting, fishing, and harvesting, the final stage consisted in the offering of first fruits—a very important part, as it was instrumental in leading to further successful accomplishments of the same work. Such offerings of first fruits relieved the foods of *tapu* by giving the gods their share, thus releasing the rest for human consumption.

Lastly, the accomplishment of undertakings of every kind was celebrated always with feasting and merrymaking. These periods of consecrated activity were always followed by long periods of inactivity and repose.

WOODWORK

The materials utilized in woodwork were beams, boards, and posts of wood, and cords to lash them together. The tools employed were stone adzes, stone chisels, mallets, and the pump drill. Most of the cord (*aho*) and rope (*tou'a*) was sennit cord, made chiefly from coconut fiber (*kaha*)—*pu'u kaha* being the generic term for sennit cord bindings and *ke'e kaha* and *kaha patapata* terms applied to such cord when used in ornamental lashings. Each lashing had its name, as *humu o Tana-oa, Fiti nui, Fiti peka,* and professionals (*tuhuna pehe*) devoted themselves to adapting the designs, which were taken from string figures (*pehe*—see Games), and to applying them in ornamental lashings. In these lashings cords of different colors were combined, some of them being of the natural reddish-brown color and others stained in water, colored with red earth, or according to one informant, dyed with the juice of the fruit of the *pu'u peni* (?); some were dyed yellow with *ena* or black by being buried in mud, or (according to Linton) by being soaked in juice from the bark of the *maii* (*Terminalia sp.*) tree, or were smeared with a paste blackened with candlenut soot; and some were made white by soaking in water in which white earth (or perhaps lime) was mixed. The manufacture of cord for nets has been described in connection with net-making. (See Fishing.)

According to Linton's information, three-, four-, six-, seven, and eight-strand rope was made, the three-strand (*tou'a*) and the four-strand (*fofii*) being the most common and the seven-strand being used for certain ceremonial purposes. It may be that the ceremonial significance of seven prevented the use of the seven-strand cordage for general purposes. In

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283 designating the number of strands in a rope (*tou'a*), the word *tua* was
322 used as a prefix, *tua to'u* meaning to triple and *tua fa* to quadruple. Thus *tou'a tua to'u* signified three-strang rope, *tou'a tua fa*, four-strand, and so on.

322 The adzes used in wood-work appear to have been always of stone,
412 although Quiros (25, vol. 1, p. 28) speaks of adzes of "thick fishbone and shells." It appears that for the northern half of the group at least, the island of Ei Ao was a center for the industry of making adz heads, on account of good stone being found there, but the adzes were made everywhere out of the best available stone.

To'i (*or toki*), was the generic term for adzes. There were doubtless many special terms for various kinds but only a few of them are known. Among these are *toki paopao*, a large adz (8), *toki tui pu*, a very large adz with a handle four feet long for canoe-making, and *toki-ouao* (8), described by Dordillon. The adz handle consisted of a crooked piece of wood (fig. 16, *a*), usually *fau*, according to Linton. In a chant descriptive of canoe-making, *noni* is mentioned as being used for that purpose but that such was the case is very doubtful, as *noni* wood is too soft. Colored, ornamental sennit lashings were used in binding the head to the handle. A lashing mentioned in the chant above referred to was called *humu a Tana-oa* (lashing of *Tana-oa*). One of the string figures collected by [524] Mrs. Handy is called by the same name. The finding of this string figure furnishes us, therefore, with a definite and interesting example of the derivation of ornamental lashing designs from string figures. According to Linton the stone head was wrapped in bark cloth before being bound with the sennit, the cloth binding to the stone head better than did the hard coconut fiber. Sacred adzes (*toki mana*) were used in coffin-making.

STONEWORK

324 Only the briefest mention will be made of stonework since this is a subject studied and described in detail by Linton. Skilled professionals directed the labor of making the stone platforms (*paepae*), that were used in connection with houses, feast places, tomb-temples, and other sacred places. In platform construction a core of earth or rubble, or both, was encased by walls made of three types of stone: common blocks or boulders (*ke'a*), which are to be found everywhere in the valleys and streams, furnished the major part of the material used in the walls, roundish, smooth beach-boulders (*kiva*) were used for horizontal, ornamental rows in the side-walls of some terraces, and for sections of the top pavements; and squarely cut blocks (*ke'etu*) of soft, reddish, volcanic stone or coral served as a curbing to trim the edges of certain section of elaborate platforms

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hold occupation in the Marquesas. The only baskets used were made of coconut leaf. *Kete* was a general term for bakets; Dordillon (8) gives also *ki'e ki'e* and *puru* [Tahitian, probably] as the term used for a small basket made of coconut leaves.

Other minor industries, which occupied the spare time of natives at home, were the making of bowls, weapons, implements, and ornaments, and the decoration of them by carving. Experts (*tuhuna*) who were skilled at these industries devoted themselves to them as professions. But families depended mostly on those in the household who were apt at such work. The work was always done on or under the sacred stone house (*fata'a*), which was *tapu*. A full description of the processes and products of these industries will be found in Linton's study of the material culture (20).

FISHING

All the professional fishermen were called *ava-ika*. Such professionals did not go to war, hence they were little honored in the tribe. The chief fisherman who directed operations and performed the ceremonial was known by several titles, *tuhuna ava-ika*, *ava-ika ke'i* (*ke'i*, great), *ava-ika nui* (*nui*, great). The natives of Atu Ona say that the fishermen in the old days lived continuously in the fishing precincts, but informants elsewhere say that the fisherman dwelt there only at the times of fishing—a statement that seems more likely to be true.

Fishermen's sacred precincts (*taha tapu na te ava-ika*) belonging to the larger tribal units were found in all sections of the group. They were, of course, always near the sea at some good landing place, which meant usually a beach. In some places the fishermen lived in a single house on a large platform. My information is that at Atu Ona the sleeping houses were small huts elevated on posts, the fishermen sleeping four in a house. Mr. Linton was told that the houses themselves were on the ground, but that the beds in which the fishermen slept were on posts. As to whether the precincts were marked off by any permanent enclosing fence or wall, I have no information, but I doubt it for the reason that mention of such never came out in discussion of these places, and because permanent enclosing fences or walls around restricted areas seem not to have been common in the Marquesas. Every such sacred precinct was named[7]. Thus the sacred places at both Ta'a Oa and Pua Ma'u, on Hiva Oa, were named Mahia. This seems to be not a general term, but a matter of coincidence. Besides the sleeping places for the fishermen and their cook house, there were also in the precincts sheds for the canoes, a house for the nets and

[7] The names of a number of these sacred precincts in the Marquesas will be published in a subsequent paper.

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The end post of a small mortuary house was decorated at the bottom with a small caryatid figure less than two feet high. The undecorated upper part of the post, which was of the ordinary triangular form, was nearly eight feet in length. No other specimens of this sort were seen and the form was probably uncommon.

346 532

Carvings on Posts

The use of house posts carved with non-naturalistic designs was quite common in Hiva Oa, Tahu Ata and Fatu Hiva. Only one doubtful example of post carving was seen in Nuku Hiva and Stewart's excellent description of the dwellings of that island makes no mention of this sort of decoration although he speaks of ornamental lashings (59, pp. 233-6). An informant of Ua Huka said that the house posts on that island were never carved with designs although he remembered the use of ornamental lashings and described them in some detail. It seems probable, therefore, that this type of decoration was little used in the northern islands of the group.

342 531

House posts decorated with carved designs retained their original rectangular or triangular cross section, the designs being rather shallowly incised upon the flat surfaces (Pl. XLI, *C*). Front posts were usually carved on the outer and inner sides; the lateral surfaces were left plain. Most end posts were carved on the flat inner side only, but a few were observed in which the two outer surfaces were also decorated. No two posts were exact duplicates, but all the posts from a single house showed more or less uniformity in the motifs employed. This was probably due to their being the work of a single artist.

Some of the posts had been carved with metal chisels, but originally the designs appear to have been hewn upon the posts with a special form of narrow-bitted adz. With this implement the artist worked free hand without a model, which accounted for the coarseness and irregularity of much of the work. The designs were never continuous from top to bottom, but were applied in horizontal zones of varying width. On a few posts there was a suggestion of an additional longitudinal division of the surface into two equal parts. The two surfaces of the outer sides of end posts were ordinarily treated as separate units. The grooves of the carving were usually semicircular in cross section, the raised surfaces between them being narrow and sharp edged. In some curvilinear designs small uncarved spaces were left, but as a rule the artist showed no appreciation of the value of plain surfaces and covered every inch of available space with carving.

372

In carving house posts angular-geometric and curvilinear patterns were used, but on analysis the number of motifs proved to be small. The designs in the posts studied may be given as follows:

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501 accounts and the fragmentary examples surviving in various parts of the group, it is possible accurately to reproduce the type.

501 824 Four species of wood were used for the large canoes *mio* (*Thespesia populnea*), temanu (*Calophyllum inophyllum*), breadfruit, and hutu (*Barringtonia speciosa*). The hutu was considered least desirable. *Mio* was rarely used, as large trees of this species were rare and the wood was in great demand for other purposes. Breadfruit wood was usually used for the smaller and poorer boats, while the best craft were made of temanu. Even at the present time there is some very large timber in the Marquesas (one temanu tree over ten feet in diameter was seen) but there is no native tree which produces a long straight stick at all comparable to the New Zealand kauri, and in very large canoes it was usually necessary to make the underbody in two or more sections which were dovetailed together.

396 913 322 Before the introduction of metal very large trees were felled with fire, but the shaping and hollowing appears to have been done entirely with tools. From a chant collected by Handy (personal communication) the tree appears to have been stripped of its bark and possibly of its branches before felling. The shaping was begun as soon as the tree was felled, the green wood being tougher and more easily worked. The tools used were stone adzes of various sorts, chisels and rubbing stones. (See chapter on Stone Artifacts.)

396 501 The building of large canoes was in the hands of *tuhuna* (skilled workmen) who merely supervised the work, leaving the actual labor to the friends and relatives of the owner. According to informants in Pua Ma'u, Hiva Oa, four hundred men (probably an exaggeration), under the direction of four *tuhuna*, were employed upon the last war canoe built there. The work was all done at the place where the tree had been felled, which in this case was high up the valley. Here a large decorated house was built for the workmen, who lived there with the directing *tuhuna* and were fed by the chief for whom the canoe was made. Twenty men are said to have been required to gather the food. The place was tapu to women and to all natives from other valleys. According to an informant from another valley some famous warrior slept in the unfinished canoe body every night in order that his mana might strengthen the wood and keep it from splitting. The completed canoe was carried down to the beach, probably in sections, and launched. [For an account of the ceremonies attending canoe building and launching see Handy (32)]. In Pua Ma'u the war canoes were kept assembled in special houses at the beach. These houses were undecorated and appear to have had no ceremonial significance beyond the fact that they were tapu to women. Each war canoe was named, a new canoe was given the name of a former one

396 501 552

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412 curved edge. Each of these adzes has its special use and in doing any piece of work, as the shaping of a bowl, great care seems to be taken to use the proper 412 tool for each stage of manufacture. In working any surface a series of light 322 glancing blows are struck instead of two or three heavy ones. Informants agree that this was also the ancient system. The blade of a stone adz could easily be shattered by a heavy direct blow, and it is related that when a *tuhuna* who had been employed to make some object became dissatisfied with his pay or working conditions he would strike a heavy blow, breaking his adz, and with this as an excuse, refuse to finish.

The small straight bladed adzes are also used as planes. The handle is grasped at the curve, with the blade below the hand, edge forward, and the tool is pushed along the surface of the wood, removing a thin shaving. Stone adzes are said to have been used in the same manner.

Very little data could be obtained on the method of using the hafted chisels other than that they were used to hollow drums and cut the lashing holes [824] in canoe parts. They were struck upon the upper end of the shaft with a *toa* wood mallet like that used in caulking canoes. (See Pl. LVI, *B*.)

GOUGES

412 The Marquesan collection in the Bishop Museum includes four implements uncommon to the group, and it has been thought best to describe them separately under the head of gouges although it can not be said with certainty that they were not hafted and used as adzes. The implement shown in Plate XLVII, *B*, 2 is 6¾ inches long, 1¾ inches wide at the bit and 1¼ inches wide at the upper end. It is almost semicircular in cross section. The cutting edge is curved, but the lower side of the bit, which is ground with a well marked bevel, is flat. The implement fits the hand well and does not appear to have been hafted.

Only slightly smaller than No. 2 and with a similar bit, gouge No. 3 shown on the same plate is distinguished from it by having parallel sides.

No. 4 on the same plate shows a small specimen whose shaft has been broken. The bit has a width of 11/16 inches and its lower surface is slightly concave. The body of this gouge is almost circular in cross section and well polished throughout, although the marks of the chipping have not been completely obliterated. The bit shows use and sharpening, and the implement was probably a carving tool.

No. 1 on this plate is completely ground and has a narrow upper and broad lower surface, both of which are flat, while the sides are somewhat rounded. The upper surface narrows toward the rear so that the blade is almost triangular at the butt (the point of greatest thickness) and the whole shape is reminiscent of

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surfaces and true angles of the stone slabs, on the other hand, could hardly have been produced with any other implement. No information as to the form or material of these stone dressing tools was obtained, but it seems probable that they were fragments of cellular lava having a more or less flat, natural surface.

The rubbing stones used in wood working were of two types, abrasive stones, which were used to obliterate the marks of coarser tools and to some extent to shape the object, and burnishing stones, which were used to give a final high polish. All the abrasive stones seen were made from more or less water-worn lumps of coral or coraline limestone, but it appears probable that pebbles of the finer grained cellular lavas were also employed. The texture varied considerably and at least one specimen was so hard and smooth that it could have had little abrasive effect. Several rubbing stones of increasingly fine grain were used in finishing a given object, the last grinding stone being followed by the burnisher. (See Pl. XLVIII, *C*.)

Burnishing stones were small pebbles of even-textured, rather soft rock which were used only in the final stage of manufacture and had no abrasive effect. They were rubbed rapidly back and forth upon the surface to be polished, the workmen exerting a fairly heavy, even pressure. In time they acquired a peculiar glassy polish resembling that of a gastrolith. The smoother the implement the better the finish which it could impart to a bowl, so old specimens were highly prized. (See Pl. XLVIII, *D*.)

PERFORATED STONE DISKS

Two perforated stone disks were collected by the expedition, one, of unknown history, being obtained in the valley of Hane, Ua Huka, while the second was found lying among some skulls in a *me'ae* in the valley of Hanapaoa, Hiva Oa. Both specimens are made of rather porous lava. (See Pl. L, *A*, 1-2.) The dimensions are as follows: No. 1, length 3⅜ inches, width 2⅞ inches, thickness 1 inch, width of perforation at surface 1 inch, width of perforation at center 3-16 of an inch. No. 2, length 4 inches, width 3½ inches, maximum thickness 1¾ inches, minimum thickness 1½ inches, width of perforation at surface 1⅜ inches, width of perforation at center ⅝ of an inch. The perforation in No. 1 is almost perfectly centered, that in No. 2 noticeably nearer one end than the other. In both, the perforation appears to have been pecked rather than drilled, and is formed by two conical pits which meet in the middle of the objects in a rough edged orifice. The surfaces of both specimens are rather carefully smoothed.

Both objects were identified by an Atu Ona informant as weights for pump drills, but this explanation does not appear entirely satisfactory. The pump drill was a common Marquesan tool, and if such weights were used one would

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MISCELLANEOUS TOOLS

Quiros (51) says that the Marquesans used adzes made from thick fish bones or shells. This is the only evidence of the occurrence of these implements in the Marquesas and as no examples are known, it seems probable that Quiros confused the Marquesas with some of the low coral islands visited on the same voyage. 412 321

Sharks' teeth, hafted in various ways, were formerly used as knives and carving tools, but no specimens seem to have survived and the methods of hafting have been forgotten by the present natives. According to Langsdorff (38, p. 175) the teeth from the lower jaw of the shark were used as substitutes for gimlets or awls, being fastened to wooden handles. Sharks' teeth, apparently unhafted, were also used as razors. The hair was gathered in small bunches and the tooth sawn back and forth across it at the roots. [825] [302]

Very few bone tools appear to have been used in the Marquesas. Fleurieu (23, p. 135) mentions the use of bone awls. Narrow wedge-like implements of bone or hard wood were used to pound the feather caulking into the bow and stern seams of canoes. Bone knives are described on page 351.

A number of shell implements appear to have been employed in wood carving, although we have no information as to their form. The grooves in *toa* wood tapa beaters are said to have been cut with pearl shells ground to a keen edge, and the handles were shaped with a small black shell, called *mama*. Fleurieu (23, p. 135) says that the Marquesans used "pieces of shell of different shapes and sizes, sharp or toothed like a saw." Knives made from whole pearl shells ground to a sharp edge were used for a number of purposes. There appears to have been no clear distinction between these and the shell scrapers used in tapa making.

Rasps made from the skin of the shark or giant ray were used in shaping clubs and other objects made from the hard *toa* wood. They were made by wrapping the skin around a smooth stick while it was wet and soft. One end of the stick projected a few inches beyond the skin, forming the handle. (See Pl. LVI, *A*.) Fine shark skin, apparently not mounted, was used in polishing bowls and other wooden objects. Sections from the tail of the giant ray were also used as rasps, requiring no preparation other than drying. These tail rasps have continued in use until modern times for the grating of sandal wood, although recently they have been supplanted by files. The spines of the sting ray are said to have been hafted and used as saws. 412 322 237

Chisels edged with rats' teeth were formerly used by expert Marquesan artisans in the carving of hard stone. None of these implements have survived, 412 324 [237]

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CONTAINERS

The Marquesans use a great variety of containers which may be divided into two main classes: natural containers, such as bamboos, coconut shells and gourds, which need little preparation for use; and wooden containers, which require considerable skill in manufacture. The wooden containers are by far the more important in the Marquesas and are well represented in most museum collections.

NATURAL CONTAINERS

JOINTS OF BAMBOO

The Marquesans, like all peoples living in regions where the larger species of bamboo grow, used joints of bamboo to transport and store fluids. Small bottles, made from a single joint, do not appear to have been used, as their place was taken by more convenient utensils of gourd or coconut shell. Large bottles were made by cutting bamboo shoots three inches or more in diameter into sections from 10 to 20 feet long and piercing the septa between the joints, forming a pipe closed at one end. The piercing is now done with an iron rod heated red; the ancient method could not be ascertained. When in use the upper end of the tube was filled with a plug of green leaves. Bamboo bottles were purely utilitarian and were never decorated.

COCONUT SHELLS

The climate and soil of the Marquesas are ideally adapted for the growth of coconuts, the trees bearing profusely and producing nuts of remarkable size. It is not surprising, therefore, that the natives made an extensive use of coconut shells as containers and that they developed considerable skill in the manufacture and decoration of utensils of this kind.

The half shell of a coconut constituted a natural cup which could be used without preparation. The first improvements upon this original form appear to have been the smoothing of the edge by grinding and the removal, also by grinding, of the small external point which prevented the cup from standing upright. Cups and bowls made in this way are still occasionally used. The next step is to remove the tough inner skin and rub the outer surface smooth; rubbing-stones and burnishers are used for this work. As a final improvement the cups were either carved or ground thin. Carved cups were given a smooth finish and then decorated by the same methods and with the same designs as wooden containers. To make the thin, uncarved cups both the outer and inner surfaces were ground away until the walls were only slightly thicker than egg shell china. They were then thoroughly impregnated with oil, making them elastic and capable of withstanding quite heavy usage. When first finished, the surfaces of coconut

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415 and are manufactured in considerable numbers. No lathes have ever been introduced into the Marquesas, and all wooden utensils are still made by aboriginal [322] processes modified only by the introduction of metal tools. The modern makers have ceased to reproduce the more elaborate ancient forms and ordinary utensils are rarely carved at the present time; but skillful carvers are still found in Nuka Hiva and Hiva Oa, and especially in Fatu Hiva, which was formerly the artistic center of the group.

415 The Marquesans employed a great variety of woods for their utensils, the 824 favorite being *mio* (*Thespesia populnea*). This tree has a dark brown heart wood and white sap wood, while its softness and even texture make it especially easy to carve. Next in importance came the temanu. This wood is light red to yellow in color and somewhat harder and less even grained than the *mio*, but still well adapted to the purpose. The trees attain a very large size, and on this account temanu appears always to have been used in ancient times for feast bowls and other large vessels. Most modern utensils are made of this wood, as the supply of large *mio* is practically exhausted. *Mei* (breadfruit) was used to a limited extent, but was considered an inferior material. Fau wood, when taken from old trees, was occasionally used, and small more or less ornamental vessels were made from sandal wood or *toa*. *Toa* was especially difficult to work on account of its hardness and its tendency to split, and objects made from it seem to have been primarily intended to show the skill of the workman. A number of other woods were sometimes used for special purposes or in the absence of better material, but according to informants, *vai*, a close grained red wood which appears well adapted to bowl making, was never used because it would split when exposed to the sun.

415 Modern bowl makers shape their utensils with adzes and knives, but 322 knives are little used. The adzes are provided with iron blades made either from plane irons or from sections of iron pipe, which has replaced the stone blades of the *toki kouma* type. (See p. 323.)

A well equipped workman employs a whole series of adzes of diminishing size, the last used being miniatures only a few inches in length. Green wood is used when possible, as it is softer and easier to work, but seasoned wood can also be used for bowls after it has been soaked in the river for several weeks. A block considerably larger than the intended object is first roughed out from the log, and is then worked down with the adz until the desired outline has been obtained. In all the examples seen approximately the final form was given to the exterior before the excavation of the interior was begun. In making round bowls a pair of European compasses are now used to outline the rim, but the shaping of the body is done entirely by eye. In shaping the exterior a light glancing blow is used, the chips detached being of such uniform size that a well made bowl just prior to polishing is covered with a multitude of small regular facets like those on a bowl of beaten brass. In excavating the interior the workman begins at the center, and gradually works back to the edges, hollowing the whole interior to the depth of about an inch. He then begins at the center once more and excavates another level, continuing until the desired depth is reached. The inside of an unfinished bowl

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thus consists of a series of steps, each marking one of the layers of excavation, and the removal of these steps is the last process prior to the polishing. The workman usually sits upon the ground, with the bowl held on edge in front of him and steadied with the left hand. In hollowing the interior a double stroke is used for each chip, the first blow being made horizontally, the second vertically. The bowl is slightly turned after each double stroke, and the excavation kept as nearly circular as possible. A knife is ordinarily used to trim the rim, being held with the blade below the hand, edge outward, and pushed away from the operator. Bowls are shaped as far as possible with the adz and knife, the final polishing serving only to obliterate the tool marks. Polishing is done with sand paper, the finest grade obtainable being used for the last stage, but in ancient times coral grinding stones were used. When the bowl has been rubbed smooth the surface is burnished with a china door knob, applied with as much pressure as possible. Old pebble polishers which have acquired a glassy finish are still occasionally used. The modern workman seems to be fully as skillful as his poorly equipped ancestor, and unless some enterprising European introduces lathes into the group it seems probable that the primitive processes of manufacture will survive unchanged for many years.

The Marquesans relied almost entirely upon carving for ornamental effect, and from conversations with modern bowl makers and carvers it would seem that the natives have little appreciation of the beauty of the wood used or the aesthetic value of pure form. This is borne out by the fact that some elaborately carved specimens are noticeably asymmetrical, when the fault could have been remedied without injury to the utensil. It is certain that many shapes of utensils were formerly used, but the long European contact has resulted in the disappearance of many of these original types and probably in the introduction of new types. The following list of native terms for various types of bowls and dishes has been compiled by Handy from Dordillon's Dictionary:

Kotipu. A large oblong dish (pig white in the middle and black at the extremities).
Kotihu. Dish.
Kopuha. Kind of native dish.
Koiomo. Cover of calabash, operculum of shell
Kokipo. Covered vase for popoi.
Kupa. Native dish. Bowl.
Kipo. Vase to serve kava. Popoi bowl with cover.
Kopo. Vase for kava.
Kaipu. All vases.
Ipu. Bowl. All vases of small dimensions.
Huo. All vases with large openings.
Huo maoi. Calabash.
Tipoui. Dish.
Tihara, Tiharahara. Small dish.
Tiaha. Drinking vase.
Tamoa. Vase to prepare kava.
Tahaka. Small dish.
Tahoa. Oblong dish.
Tahaha. Large dish for popoi.
Puru huo. Small dish.
Pihara, Piarahara. Native dish.
Papa kotua. Covered dish for popoi.
Maoa tapu. Large vase with cover to conserve popoi.
Akuipoi. A round wooden dish. An oval dish with a cover.

Many of these container forms could no longer be identified, and the following descriptions are based on specimens seen or described by reliable informants.

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In pre-

415 European times the carving was done with sharks' teeth, rats' teeth, or shells, but
531 for nearly a century these implements have been replaced by implements of iron.
322 Practically all the tools now used by carvers are home-made and are crude, but effective. They consist of small chisels, made from large nails ground to a straight edge; curved chisels, also made from nails, and small gouges, which are usually made from umbrella ribs. Knives are apparently never used for carving.

Containers are always completely shaped and polished as if for use before carving, a practise which increases the difficulties of the artist as it makes it impossible to conceal any slips of the chisel. The bowl to be carved is soaked in a stream for some time to soften the wood, and when not being worked on is usually kept in water. Only beginners draw the designs upon the utensil before carving; the skilled workman carves entirely free hand and arranges the spacing of even the most intricate designs entirely by eye. The chisel, usually fixed in a rough wooden handle, is held with the bit below the hand, and the carver appears to work with equal facility either toward or away from the body. The incision is first marked out by pressing the chisel into the wood vertically, and is then made by pushing the tool along horizontally, with one corner of the bit at the bottom of the original vertical cut and the edge, sloping upward to the surface of the bowl at a variable angle. A long triangular sliver is thus removed; any irregularities in the cutting are dressed down with small chisels. In a very large proportion of the carved specimens all the incisions have this triangular form, but when wide spaces are to be cut away they are outlined by two cuts of the sort just described, the wood between is removed, and the bottom of the space dressed flat or left with a low central ridge. Curved chisels are used to dress the vertical sides of incisions in curved designs, while the gouges are used principally for small details or shallow designs which are incised rather than carved.

Modern carvers have a strong tendency to enlarge and simplify the details of the designs and broaden the incisions in order to increase the speed of production.

415 Carved decoration appears to have been most commonly used upon round
531 bowls, next in frequency being the boxes and the tureen-like covered dishes. At least some of the other forms were probably carved in pre-European times but no carved *toto* or oval bowls, with the exception of the bird effigies, are known. Bird effigies and some boxes were carved only upon the projecting knob, and a few bowls and dishes were decorated with a carved band below the rim, but as a rule the carving covered the entire outside of the utensil. In applying the designs the surface was rarely, if ever, treated as a whole, being broken up into a number of sections which were treated as separate units. In the actual process of carving the outlining of these sections upon the bowl was the first step, and the filling designs were applied afterward. A symmetrical arrangement of the sections appears to have always been intended, and there is usually more or less agreement between the filling designs of corresponding sections. In decorating a circular bowl the bottom was usually treated as a single unit, although it was sometimes divided into two or more parts. The sides were divided either into horizontal zones or vertical sections, and the boundaries marked either by plain

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

MUSICAL INSTRUMENTS

DRUMS

In musical ability the Marquesans appear to have been inferior to the Tahitians and the Hawaiians, but they possessed a number of musical instruments, the most important of which were drums (Pl. LXXII, *A*). That these were made in a variety of forms and sizes is indicated by the following terms from Dordillon's Dictionary[1]:

Pahu.	Drum.
Pahu peiei.	Small drum.
Pahu ua.	Double drum.
Pahu me'ae.	Large drums used in the *me'ae*.
Pahu putuu.	Short drum.
Pahu oeoe.	Small drum used to accompany songs.
Pahu tapete.	Long narrow drum.
Umi.	Drum.
Teveteve.	Drum.
Pere.	Kind of small drum.
Uhaki.	Small drum played with the *uhaki*.
Pahu vanana.	A thin drum, perhaps six feet high, made of *tou* wood; it was beaten as an accompaniment for the singing of the *vanana* by the men in the *me'ae*.
Utu.	A small drum used at feasts.
Pahu umi.	A small drum.
Tutu.	Small drums played on the *tohua*.
Pahu anana.	Big drums beaten from a *paepae*.

Unfortunately several of the drums in this list can no longer be identified. The *pahu ua* must have constituted a distinct type, but no information in regard to it was obtained and no examples seem to have survived. Except for the *pahu ua*, all the Marquesan drums figured or preserved conform so closely to a single type of design and construction that it seems probable that they differed only in size and in minor details. They may be described as follows:

The smallest drum seen was slightly more than thirteen inches high with a head diameter of six inches. The largest, a *pahu me'ae*, had lost its base through decay, but must originally have been more than eight feet high with a rim diameter of nineteen inches. The bases of even the largest drums seem to have been comparatively low, the differences in height resulting from variations in the length of the body.

All drums were hewn from a single piece of wood. Some very large drums were apparently made from temanu, but the decay of the wood made identification difficult. Drums of ordinary size appear to have been uniformly made of *mio;* and as only the dark heart wood was used, very large trees must have been required. The body of the drum was shaped with adzes and the interior hollowed with chisel and mallet. Fire does not seem to have been used.

The body of the Marquesan drum was cylindrical. In drums of ordinary size the diameter was slightly greater at the bottom than at the top, but in the very large temple drums

[1] Translation and explanatory notes by E. S. Craighill Handy.